**Work Order ID 105082** *105082* 

*July-23-13 1:06:30 PM*

**Item ID:** D3646-2 **Accept** *N900040100* **Setup Start** *NS1*

**Revision ID:** **Stop** *NS2*

**Item Name:** Arm

**Start Date:** 7/23/13 **Start Qty:** 6.00 *6* **Cust Item ID:**

**Required Date:** 7/23/13 **Req'd Qty:** 6.00 *6* **Customer:**

**Reference:**

**Run Start** *NR1*

**Approvals:** **Process Plan:** MLJ **Date:** 13-07-24 **Tooling:** ______ **Date:** ______

**QC:** ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

**Stop** *NR2*

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|

| Draw Nbr | Revision Nbr |
|---|---|
| D3646 | C |

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 100 *100* Brake NC<br>Brake NC | NC BRAKE<br>**Memo**<br>1-Punch to length as per Dwg D3646 & template DT8958 | 0.00<br>0.00 | | | | 6 | ∅ | | FF 13-09-23 |
| 110 *110* Small Fab<br>Small Fab | Small Fab<br>**Memo**<br>1-Deburr | 0.00<br>0.00 | | | | 6 | ∅ | | FF 13-09-23 |
| 120 *120* QC<br>Quality Control | QC5- Inspect part completeness to step on W/O<br>**Memo** | 0.00<br>0.00 | DAS 27 9-89<br>13 9 23 | | | 6 | | | |

DQA: ________ Date: ____________

NCR: Yes / No

# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

| Work Order: ____________<br>Part No. ____________<br>NCR No. ____________ | **DISPOSITION**<br>Rework ☐<br>Scrap ☐<br>Use-as-is ☐<br>Work Order Update ☐ | **AGAINST DEPARTMENT/PROCESS**<br>Skid-tube ☐ Crosstube ☐ Water Jet ☐ Engineering ☐<br>Machining ☐ Small Fab ☐ Prod. Eng. Coor. ☐ Quality ☐<br>Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐<br>Large Fab ☐ Composite ☐ Supplier ☐ ☐ |
|---|---|---|

| **Root Cause** | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---|---|---|---|---|---|---|---|---|---|
| Doc/Data ☐ | | | | | | | | | |
| Equip/Tooling ☐ | | | | | | | | | |
| Operator ☐ | | | | | | | | | |
| Material ☐ | | | | | | | | | |
| Setup ☐ | | | | | | | | | |
| Other ☐ | | | | | | | | | |
| Process ☐ | | | | | | | | | |
| Supplier ☐ | | | | | | | | | |
| Training ☐ | | | | | | | | | |
| Unapproved ☐ | | | | | | | | | |

## FAULT CATEGORY

| **Landing Gear** | **General** | | | |
|---|---|---|---|---|
| ☐ Bending | ☐ Bend | ☐ Grain | ☐ Ovalized | ☐ Pressure/Forced |
| ☐ Centre Not Concentric to O/S | ☐ BOM/Route | ☐ Hardware | ☐ Over/Under tolerance | ☐ Temperature/Cure |
| ☐ Cracks | ☐ Broken/Damaged | ☐ Inspection Incomplete | ☐ Part Incorrect | ☐ Weld |
| ☐ Crushed/Crimped | ☐ Burrs | ☐ Instructions Incomplete/Unclear | ☐ Part Lost/Missing | ☐ Wrong Stock Pulled |
| ☐ Cuffs | ☐ Contamination | ☐ Maintenance | ☐ Part Moved | |
| ☐ Heat Treat | ☐ Countersink | ☐ Mislabeled | ☐ Positioned Wrong | |
| ☐ Inspection Strip in Tube | ☐ Cut Too Short | ☐ Misread | ☐ Power Loss/Surge | ☐ Other |
| ☐ Ripples in Bend | ☐ Drill Holes | ☐ Offset | | ____________ |
| ☐ Torque Waves in Extrusion | ☐ Drawing | ☐ Out of Calibration | | ____________ |
| ☐ Turning Sequence | ☐ Finish | ☐ Out of Sequence | | ____________ |
| ☐ Wave/Twist in Tube | ☐ Folio | ☐ Outside Dimensions | | |

**Work Order ID 105082** *105082*

*July-23-13 1:06:30 PM*



| | | | | | |
|---|---|---|---|---|---|
| **Item ID:** | D3646-2 | | **Accept** | *N900040100* | **Setup** **Start** *NS1* |
| **Revision ID:** | | | | | **Stop** *NS2* |
| **Item Name:** | Arm | | | | |
| **Start Date:** | 7/23/13 | **Start Qty:** 6.00 | *6* | **Cust Item ID:** | |
| **Required Date:** | 7/23/13 | **Req'd Qty:** 6.00 | *6* | **Customer:** | |
| **Reference:** | | | | | |

**Approvals:** **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______ **Run** **Start** *NR1*

**QC:** ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 130 *130* Powdercoat Powder Coating M117338 | Black Sandtex(Ref:4.3.5.7) per QSI005 4.3 | 0.00 | | | | 6X | ø | M | 13/09/23 |
| | **Memo** START TIME: 11:30 OVEN TEMPERATURE: 320°F FINISH TIME: 12:00 | 0.00 | | | | | | | |
| 140 *140* QC Quality Control | QC3- Inspect Part Finish | 0.00 | | | | 6 | ø | 13-9-23 | [stamp] |
| | **Memo** | 0.00 | | | | | | | |
| 150 *150* Packaging Packaging | Identify as per dwg & Stock Location: S-227 | 0.00 | | | | 6X | | | [stamp] 13-9-23 |
| | **Memo** | 0.00 | | | | | | | |

DQA: ________ Date: ____________

NCR: Yes / No

# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

| Work Order: ____________ | DISPOSITION | AGAINST DEPARTMENT/PROCESS | | | |
|---|---|---|---|---|---|
| Part No. ____________ | Rework ☐ | Skid-tube ☐ | Crosstube ☐ | Water Jet ☐ | Engineering ☐ |
| NCR No. ____________ | Scrap ☐ | Machining ☐ | Small Fab ☐ | Prod. Eng. Coor. ☐ | Quality ☐ |
| | Use-as-is ☐ | Thermoforming ☐ | Finishing ☐ | Rec/Store/Packaging ☐ | Other ☐ |
| | Work Order Update ☐ | Large Fab ☐ | Composite ☐ | Supplier ☐ | ☐ |

| **Root Cause** | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---|---|---|---|---|---|---|---|---|---|
| Doc/Data ☐ | | | | | | | | | |
| Equip/Tooling ☐ | | | | | | | | | |
| Operator ☐ | | | | | | | | | |
| Material ☐ | | | | | | | | | |
| Setup ☐ | | | | | | | | | |
| Other ☐ | | | | | | | | | |
| Process ☐ | | | | | | | | | |
| Supplier ☐ | | | | | | | | | |
| Training ☐ | | | | | | | | | |
| Unapproved ☐ | | | | | | | | | |

## FAULT CATEGORY

| **Landing Gear** | **General** | | | |
|---|---|---|---|---|
| ☐ Bending | ☐ Bend | ☐ Grain | ☐ Ovalized | ☐ Pressure/Forced |
| ☐ Centre Not Concentric to O/S | ☐ BOM/Route | ☐ Hardware | ☐ Over/Under tolerance | ☐ Temperature/Cure |
| ☐ Cracks | ☐ Broken/Damaged | ☐ Inspection Incomplete | ☐ Part Incorrect | ☐ Weld |
| ☐ Crushed/Crimped | ☐ Burrs | ☐ Instructions Incomplete/Unclear | ☐ Part Lost/Missing | ☐ Wrong Stock Pulled |
| ☐ Cuffs | ☐ Contamination | ☐ Maintenance | ☐ Part Moved | |
| ☐ Heat Treat | ☐ Countersink | ☐ Mislabeled | ☐ Positioned Wrong | |
| ☐ Inspection Strip in Tube | ☐ Cut Too Short | ☐ Misread | ☐ Power Loss/Surge | ☐ Other ____________ |
| ☐ Ripples in Bend | ☐ Drill Holes | ☐ Offset | | ____________ |
| ☐ Torque Waves in Extrusion | ☐ Drawing | ☐ Out of Calibration | | ____________ |
| ☐ Turning Sequence | ☐ Finish | ☐ Out of Sequence | | ____________ |
| ☐ Wave/Twist in Tube | ☐ Folio | ☐ Outside Dimensions | | ____________ |

**Work Order ID 105082**
*July-23-13 1:06:30 PM*

*105082*

| | | | | | |
|---|---|---|---|---|---|
| **Item ID:** | D3646-2 | **Accept** | *N900040100* | **Setup Start** | *NS1* |
| **Revision ID:** | | | | **Stop** | *NS2* |
| **Item Name:** | Arm | | | | |
| **Start Date:** | 7/23/13 | **Start Qty:** 6.00 | *6* | **Cust Item ID:** | |
| **Required Date:** | 7/23/13 | **Req'd Qty:** 6.00 | *6* | **Customer:** | |
| **Reference:** | | | | | |

**Approvals:** **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______ **Run Start** *NR1*

**QC:** ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 160 *160* | QC21- Final Inspection - Work Order Release | 0.00 | | | | | | | |
| QC Quality Control | **Memo** | 0.00 | | | | | | | |

13-09-24

13-09-24

DQA: ________ Date: ____________

NCR: Yes / No

# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

| Work Order: ______ <br> Part No. ______ <br> NCR No. ______ | **DISPOSITION** <br> Rework ☐ <br> Scrap ☐ <br> Use-as-is ☐ <br> Work Order Update ☐ | **AGAINST DEPARTMENT/PROCESS** <br> Skid-tube ☐ Crosstube ☐ Water Jet ☐ Engineering ☐ <br> Machining ☐ Small Fab ☐ Prod. Eng. Coor. ☐ Quality ☐ <br> Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ <br> Large Fab ☐ Composite ☐ Supplier ☐ |
|---|---|---|

| **Root Cause** | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---|---|---|---|---|---|---|---|---|---|
| Doc/Data ☐ | | | | | | | | | |
| Equip/Tooling ☐ | | | | | | | | | |
| Operator ☐ | | | | | | | | | |
| Material ☐ | | | | | | | | | |
| Setup ☐ | | | | | | | | | |
| Other ☐ | | | | | | | | | |
| Process ☐ | | | | | | | | | |
| Supplier ☐ | | | | | | | | | |
| Training ☐ | | | | | | | | | |
| Unapproved ☐ | | | | | | | | | |

## FAULT CATEGORY

| **Landing Gear** | **General** | | | |
|---|---|---|---|---|
| ☐ Bending | ☐ Bend | ☐ Grain | ☐ Ovalized | ☐ Pressure/Forced |
| ☐ Centre Not Concentric to O/S | ☐ BOM/Route | ☐ Hardware | ☐ Over/Under tolerance | ☐ Temperature/Cure |
| ☐ Cracks | ☐ Broken/Damaged | ☐ Inspection Incomplete | ☐ Part Incorrect | ☐ Weld |
| ☐ Crushed/Crimped | ☐ Burrs | ☐ Instructions Incomplete/Unclear | ☐ Part Lost/Missing | ☐ Wrong Stock Pulled |
| ☐ Cuffs | ☐ Contamination | ☐ Maintenance | ☐ Part Moved | |
| ☐ Heat Treat | ☐ Countersink | ☐ Mislabeled | ☐ Positioned Wrong | |
| ☐ Inspection Strip in Tube | ☐ Cut Too Short | ☐ Misread | ☐ Power Loss/Surge | ☐ Other ______ |
| ☐ Ripples in Bend | ☐ Drill Holes | ☐ Offset | | ______ |
| ☐ Torque Waves in Extrusion | ☐ Drawing | ☐ Out of Calibration | | ______ |
| ☐ Turning Sequence | ☐ Finish | ☐ Out of Sequence | | ______ |
| ☐ Wave/Twist in Tube | ☐ Folio | ☐ Outside Dimensions | | |

# Picklist Print

*July-23-13 1:06:29 PM*



1

**Work Order ID:** 105082

**Parent Item:** D3646-2

**Parent Item Name:** Arm

**Start Date:** 7/23/13 **Required Date:** 7/23/13

**Start Qty:** 6.00 **Required Qty:** 6.00

**Comments:** IPP revA 11.07.12 new issue EC verified by:JLM

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **M304TR0.500W.035**<br>304 RD Tube .500 x .035W | | Purchased | No | | | 100 | f | 511.0691 | **2.11** | **13.326316** | FF | 13-09-23 | |

| Location | | Loc Qty | Loc Code | |
|---|---|---|---|---|
| MAT017 | | 511.06913 | | |
| | 118702 | 0.00003 | | |
| | 123303 | 138.9645 | | |
| | 125513 | 372.1046 | | 13.326 |

DQA: ________ Date: ____________

NCR: Yes / No

# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: ____________________

Part No. ____________________

NCR No. ____________________

**DISPOSITION**

Rework ☐
Scrap ☐
Use-as-is ☐
Work Order Update ☐

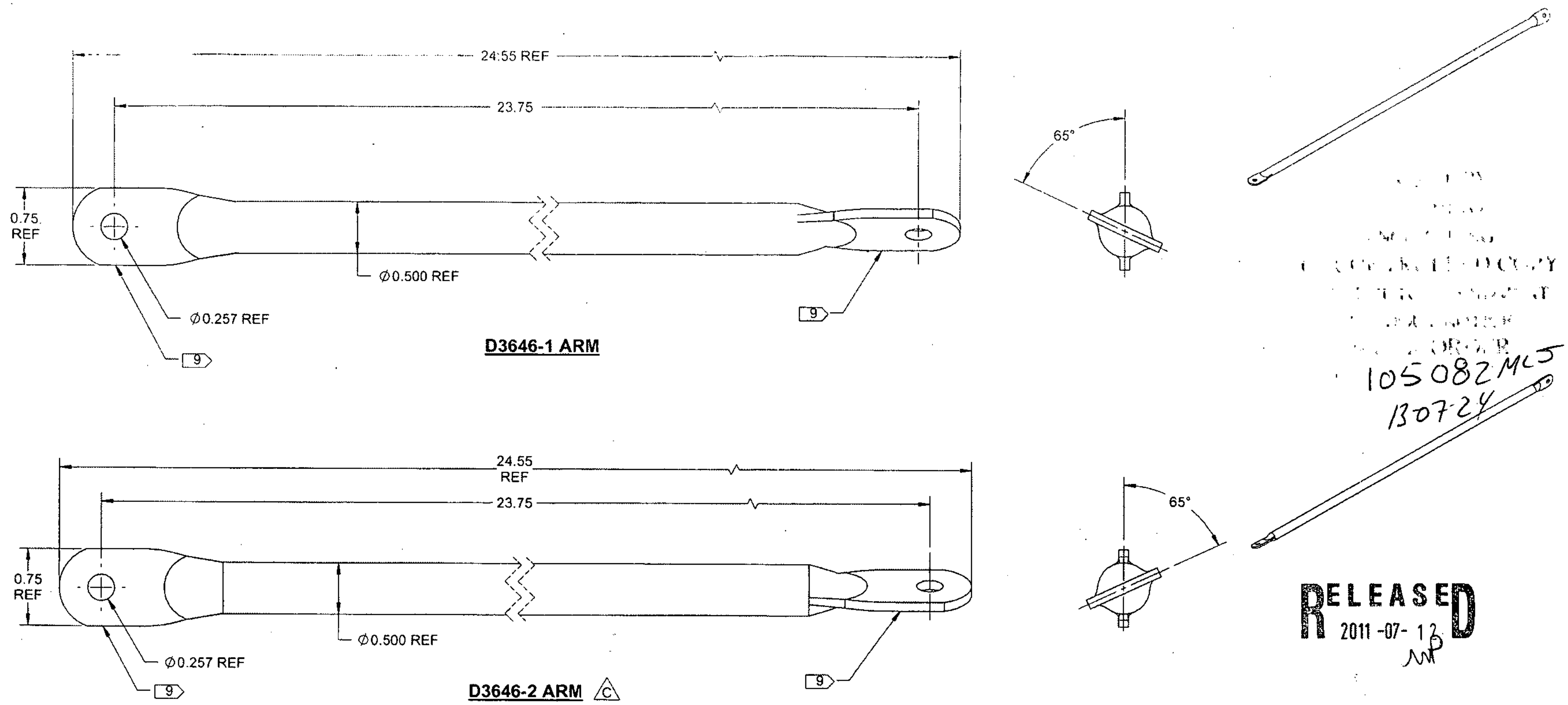
**AGAINST DEPARTMENT/PROCESS**

| | | | |
|---|---|---|---|
| Skid-tube ☐ | Crosstube ☐ | Water Jet ☐ | Engineering ☐ |
| Machining ☐ | Small Fab ☐ | Prod. Eng. Coor. ☐ | Quality ☐ |
| Thermoforming ☐ | Finishing ☐ | Rec/Store/Packaging ☐ | Other ☐ |
| Large Fab ☐ | Composite ☐ | Supplier ☐ | ☐ |

| **Root Cause** | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---|---|---|---|---|---|---|---|---|---|
| Doc/Data ☐ | | | | | | | | | |
| Equip/Tooling ☐ | | | | | | | | | |
| Operator ☐ | | | | | | | | | |
| Material ☐ | | | | | | | | | |
| Setup ☐ | | | | | | | | | |
| Other ☐ | | | | | | | | | |
| Process ☐ | | | | | | | | | |
| Supplier ☐ | | | | | | | | | |
| Training ☐ | | | | | | | | | |
| Unapproved ☐ | | | | | | | | | |

**FAULT CATEGORY**

| Landing Gear | General | | | |
|---|---|---|---|---|
| ☐ Bending | ☐ Bend | ☐ Grain | ☐ Ovalized | ☐ Pressure/Forced |
| ☐ Centre Not Concentric to O/S | ☐ BOM/Route | ☐ Hardware | ☐ Over/Under tolerance | ☐ Temperature/Cure |
| ☐ Cracks | ☐ Broken/Damaged | ☐ Inspection Incomplete | ☐ Part Incorrect | ☐ Weld |
| ☐ Crushed/Crimped | ☐ Burrs | ☐ Instructions Incomplete/Unclear | ☐ Part Lost/Missing | ☐ Wrong Stock Pulled |
| ☐ Cuffs | ☐ Contamination | ☐ Maintenance | ☐ Part Moved | |
| ☐ Heat Treat | ☐ Countersink | ☐ Mislabeled | ☐ Positioned Wrong | |
| ☐ Inspection Strip in Tube | ☐ Cut Too Short | ☐ Misread | ☐ Power Loss/Surge | ☐ Other ________ |
| ☐ Ripples in Bend | ☐ Drill Holes | ☐ Offset | ________ | |
| ☐ Torque Waves in Extrusion | ☐ Drawing | ☐ Out of Calibration | ________ | |
| ☐ Turning Sequence | ☐ Finish | ☐ Out of Sequence | ________ | |
| ☐ Wave/Twist in Tube | ☐ Folio | ☐ Outside Dimensions | | |

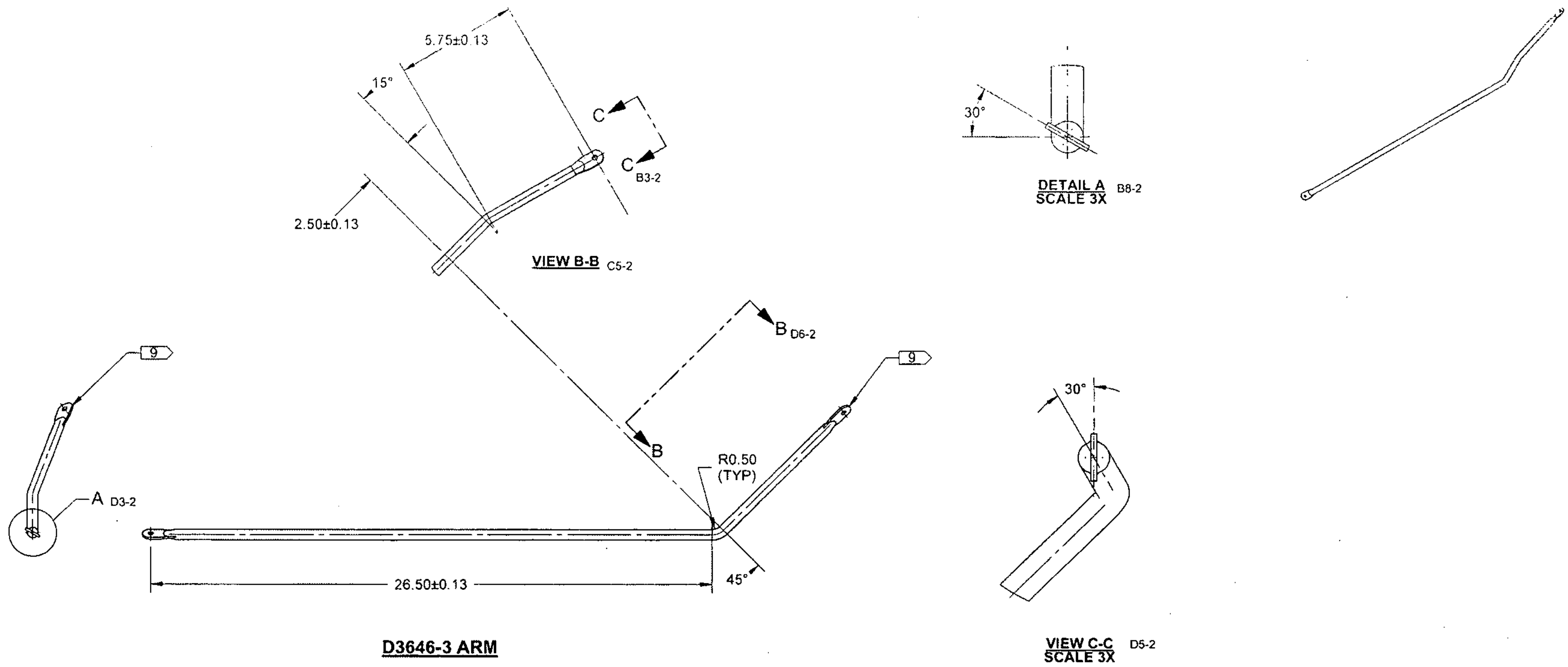



NOTES:
1) MATERIAL: AISI 304/316 SS TUBE Ø0.500 X 0.035 WALL PER ASTM A213/A269 OR ASME A213
(REF DART SPEC. M304TR0500W.035)
2) FINISH: POWDER COAT "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3646-X" AND B/N "BXXXXX"
PER DART QSI 044 6.1 USING REMOVABLE TAG
7) WEIGHT: 0.38 lbs
8) DELETED AT REV. C (C)
9) PUNCH BOTH ENDS PER SPEC CONTROL DWG D2727

| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| C | ADD-2 & -4 FOR LHS INSTALLATION. DELETE REFERENCES TO TEMPLATES (NOTE 8) PER SHOP REQUEST. | AJS | 11.07.11 |
| B | REFORMAT DWG, ANGLE 65° WAS 45° (ZN C3-1), ADD IDENTIFICATION TAG (ZN A8-1, A8-2) | CP | 09.06.04 |
| A | NEW ISSUE | MB | 07.06.06 |

| | | | |
|---|---|---|---|
| DESIGN | MB | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA | |
| DRAWN | AJS | | |
| CHECKED | [signature] | DRAWING NO.<br>D3646 | REV. C<br>SHEET 1 OF 3 |
| MFG. APPR. | [signature] | | |
| APPROVED | [signature] | TITLE<br>ARM | SCALE<br>NTS |
| DE APPR. | [signature] | | |
| DATE | 11.07.11 | | |

105082



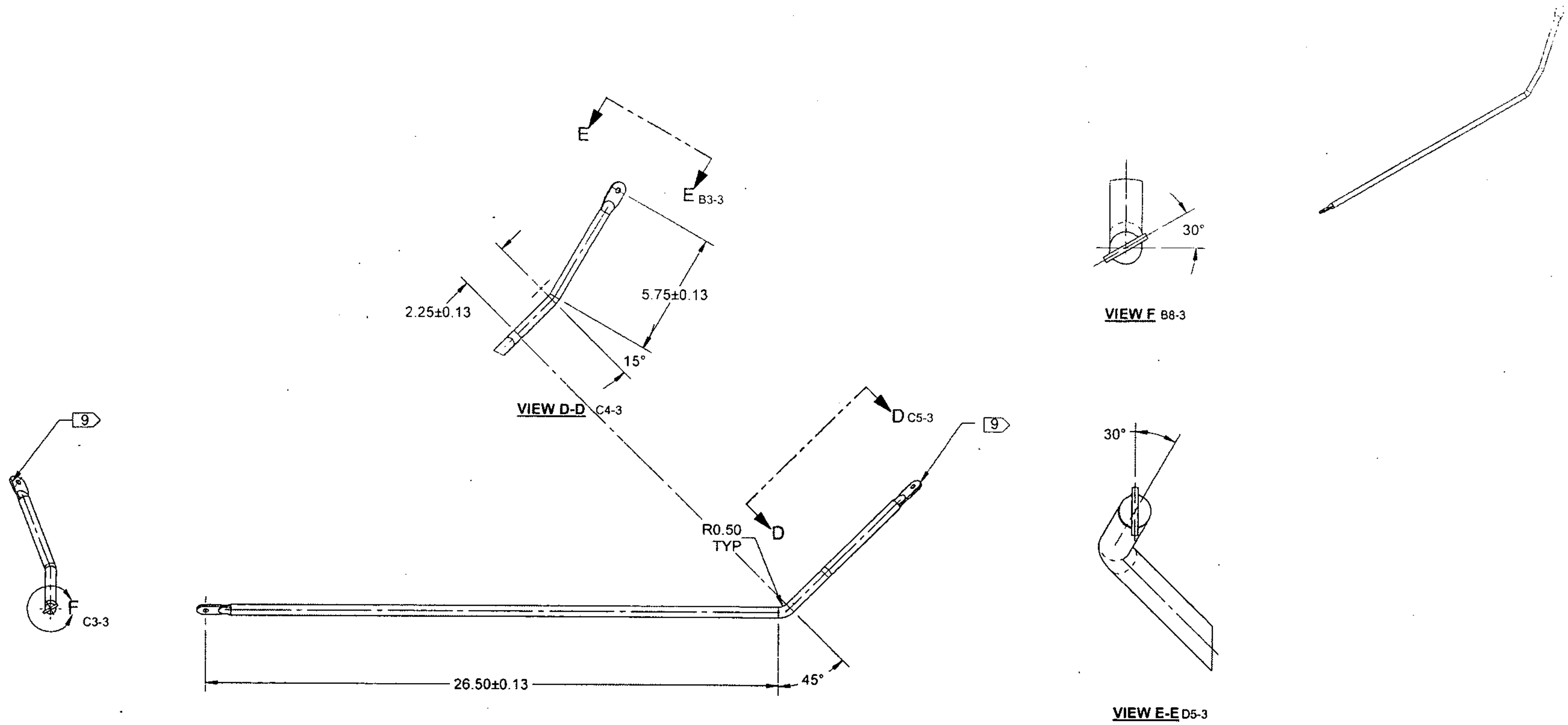

D3646-3 ARM



NOTES:
1) MATERIAL: AISI 304/316 SS TUBE ∅0.500 X 0.035 WALL PER ASTM A213/A269 OR ASME A213 (REF DART SPEC. M304TR0500W.035)
2) FINISH: POWDER COAT "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3646-3" AND B/N "BXXXXX" PER DART QSI 044 6.1 USING REMOVABLE TAG
7) WEIGHT: 0.57 lbs
8) DELETED AT REV C. △C
9) PUNCH BOTH ENDS PER SPEC CONTROL DWG D2727

| DESIGN | MB | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |
|---|---|---|
| DRAWN | AJS | DRAWING NO. D3646 — REV. C — SHEET 2 OF 3 |
| CHECKED | [signature] | |
| MFG. APPR. | [signature] | TITLE ARM — SCALE NTS |
| APPROVED | [signature] | |
| DE APPR. | [signature] | |
| DATE | 11.07.11 | |

105082




**D3646-4 ARM**

RELEASED 2011-07-12

NOTES:
1) MATERIAL: AISI 304/316 SS TUBE $\phi$0.500 X 0.035 WALL PER ASTM A213/A269 OR ASME A213 (REF DART SPEC. M304TR0500W.035)
2) FINISH: POWDER COAT "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3646-4" AND B/N "BXXXXX" PER DART QSI 044 6.1 USING REMOVABLE TAG
7) WEIGHT: 0.57 lbs
8) DELETED AT REV C. (C)
9) PUNCH BOTH ENDS PER SPEC CONTROL DWG D2727

| | | |
|---|---|---|
| DESIGN | MB | **DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA |
| DRAWN | AJS | |
| CHECKED | [signature] | DRAWING NO. D3646 — REV. C — SHEET 3 OF 3 |
| MFG. APPR. | [signature] | |
| APPROVED | [signature] | TITLE ARM — SCALE NTS |
| DE APPR. | [signature] | |
| DATE | 11.07.11 | |

# DART AEROSPACE LTD

DART AEROSPACE

| Description: | Arm | | Work Order: | 105082 ~~D3646-2~~ |
|---|---|---|---|---|
| | | | | |
| Inspection Drawing: | & | Rev: C | Part Number: | D3646-2 |

## INSPECTION SHEET

| Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|---|---|---|---|---|---|---|
| 24.55 | +/- .030 | 24.55 | ✓ | | | |
| 23.75 | +/- .030 | 23.75 | ✓ | | | |
| Ø .257 | +/- .005 | .257 | ✓ | | | |
| .75 | +/- .030 | .75 | ✓ | | | |
| .65° | +/- 1/2° | .65° | ✓ | | | |
| Ø .500 H | +/- .010 | .500 | ✓ | | | |
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| Measured by: FF | Checked By: [signature] | QC inspector: | Engineering Approval (*if necessary*): |
|---|---|---|---|
| Date 13-09-23 | Date 13/09/23 | Date | Date |